



January 12, 2007

PCN Number: 0624

PCN Change Level: Minor

Subject: Introduction of UMC Modified Algorithm (UMA) for RTAX-S FPGAs

Dear Customer,

In the Silicon Sculptor software v4.62.0, Actel has introduced an updated programming algorithm (UMC Modified Algorithm, UMA) for the RTAX-S space-flight FPGAs. For customers programming RTAX250S, RTAX1000S, or RTAX2000S FPGAs, the use of UMA is optional. For customers programming RTAX4000S or RTAX4000S-PROTO, UMA is the only programming algorithm that is supported. UMA is not being supported for Axcelerator[®] FPGAs at this time.

RTAX-S Antifuse Testing

At the date of this notice, Actel has accumulated over 1.65 M device-hours of highly stressful testing on RTAX-S space-flight FPGAs programmed with the original programming algorithm. The vast majority of these device hours were accumulated at junction temperatures in excess of 125°C. The testing included a batch of 120 units that were subjected to 6,000 hours of high temperature operating life (HTOL) testing at junction temperature in excess of 125°C. After all of these tests, Actel has not detected any antifuse failures. Therefore, we conclude that the original programming algorithm provides excellent levels of reliability. However, in the interests of continuous improvement, Actel is making the UMA algorithm available to customers using RTAX250S, RTAX1000S, and RTAX2000S FPGAs.

No customer programming of RTAX4000S and RTAX4000S-PROTO FPGAs has been supported until this time; therefore, only the UMA programming algorithm is supported for RTAX4000S and RTAX4000S-PROTO. The RTAX4000S qualification will utilize the UMA programming algorithm.

Qualification of the UMA programming algorithm has been performed and further reliability testing is in process. No antifuse failures have been detected. Testing continues, and results will be posted periodically in the *RTAX-S Testing and Reliability* paper located on the Actel website at http://www.actel.com/documents/RTAXS_Rel_Test_WP.pdf.



Using Silicon Sculptor v4.62.0

Customers intending to program RTAX250S, RTAX1000S, or RTAX2000S with UMA will need to regenerate their AFM files using Designer v7.3 or later. This is necessary because UMA requires more information about the antifuses that will be programmed than the original programming algorithm. Silicon Sculptor v4.62.0 or later will also be needed. If the Silicon Sculptor software detects the additional information in the AFM file, it will automatically deploy the UMA algorithm to program the devices.

Customers intending to program RTAX250S, RTAX1000S, or RTAX2000S with the original programming algorithm can update to v4.62.0 and program their units as usual, making no changes to their usual procedure. The programming software will detect that the design files do not contain the additional information needed to use UMA, and therefore the original programming algorithm will be deployed.

Customers who want to update to Designer v7.3 and Silicon Sculptor v4.62.0 but still need to use the original programming algorithm may do so by making the appropriate menu choices in the Designer software.

Customers intending to program RTAX4000S or RTAX4000S-PROTO will need to use Silicon Sculptor v4.62.0 and Designer v7.3. The UMA algorithm will be deployed automatically. Silicon Sculptor v4.62.0 is available for download at <http://www.actel.com/custsup/updates/silisculpt/sculptor4620.html>. Designer v7.3 will be available for download after January 24, 2007.

For questions, please contact Actel's Application Technical Support at tech@actel.com.

Regards,

Actel Corporation